SEQUENCE LISTING

<110> Hanson, Andrew D.
 Nuccio, Michael L.
 Henry, Susan A.

<120> POLYNUCLEOTIDE COMPOSITIONS ENCODING
 S-ADENOSYL-L-METHIONINE: PHOSPHOETHANOLAMINE
 N-METHYLTRANSFERASE AND METHODS FOR MODULATING
 LIPID BIOSYNTHESIS IN PLANTS

<130> 4300.012700

<140> Unknown

<141> 2000-03-15

<160> 8

<170> PatentIn Ver. 2.1

<210> 1

<211> 2235

<212> DNA

<213> Spinacia oleracea

<400> 1

cattcatttg aagcgtggaa gtagtagttt tgtggtagag tgaatttgat actcctactg 60 ctcatgcggc agagaggcag ggcttcgaac cgtagatcca ggactttttc tcgttctcgc 120 attgccattg agggtcacta atacttttaa ctatctcctt ctttttcttt cccacaattt 180 ctgcgttttc acgcacatta atctcaccta ttttctagct tcttcatttt ctcaatcaat 240 ctctcgtgtt attatggccg cttcagctat gggagtgttg caagagagag aggtgttcaa 300 gaaatactgg attgaacact ctgttgattt gactgttgag gctatgatgc ttgattcaca 360 agetteagat ettgacaaag tggagegace tgaggtaett tecatgette cacettatga 420 aggaaagtet gtettagaac teggtgetgg tattggtegt tttactggtg aattggeega 480 gaaagctagc caggtcatcg ctctggattt cattgagagt gttataaaga agaatgaaag 540 cataaatqqq cattacaaaa atgtgaagtt tatgtgtgct gatgtgacat ctccaagtct 600 caacatttca ccaaattccg tggatatcat attctccaat tggctactca tgtatctttc 660 tqatqaaqaq qttqaqcqtc tggttgaaag gatgttgaaa tggttgaagc caggaggata 720 cattttcttc agagaatctt gttttcatca atcaggagat cacaagcgca aaagcaatcc 780 aacccactac cqtqaaccta qgttctacac caagatcttc aaagaatgcc atatgcaaga 840 tqattctqqq aactcctatg agctctccct aattggctgc aaatgtattg gagcttatgt 900 caaaaqcaaq aaqaatcaga accagataag ctggttatgg cagaaagttg attcagagga 960 tqacaaqqqq ttccaqcqat tcttggattc tagtcaatac aagtttaaca gcatactgcg 1020 ttatgagcgt gtatttggtc ctggttatgt tagtaccgga ggactcgaaa caaccaagga 1080 gtttgtatca aagcttgact tgaagcctgg ccagaaggtc ctagatgtgg gttgtggcat 1140 aggtggaggt gatttttaca tggcagagaa ctatgatgtt gaggttgttg gaattgatct 1200 ctccattaat atgatttctt ttgcccttga gcgctcaatt ggcctcaaat gtgctgttga 1260 gtttgaggtg gcagattgca ccaagaaaga ttaccctgaa aactcttttg atgtcatcta 1320 cagccgtgat accattctgc atattcagga caaacctgct ttatttagat ccttccacaa 1380 atggttgaaa cctggaggca aagttcttat tagtgactac tgtaagagtg ctggtacacc 1440 ttcagctgaa tttgctgcat acatcaggca gaggggatat gatctccacg atgtgaaggc 1500 atatggcaag atgcttaaag atgctggatt cgttgaggtt attgctgaga ataggactga 1560 ccaqttcatt caagttctgc agaaggaact agatgctctt gaacaggaga aggatgactt 1620 cattgatgat ttctctgagg aggattataa cgacatagtt gatggttgga aggccaagtt 1680 ggtgaggact acagagggtg agcaacaatg gggtttgttc attgccaaga aaatgtgaag 1740 aatqaqctqq tqaaaqcaqc acggtgcctt tttctagtat tagtttatca atgtattttc 1800 aqttcatqqa ctqtatatqc aaaatctacc aataagctgt gagttgcaaa ctgaaagatg 1860 atttcttata gtcacttctg aattagcaca agcagtgaag ttcgcataag aaactgaagg 1920 qaactcatqq agttgcagac gaaatcatca aaacggcaga acccactctc tatatagaga 1980 tctagtggtt aagttatgtg ttttgtacat tttccgttcc aagttcactc aatcttacca 2040 tcataatatc accgctttta cttctttata tggtggattg aagtcgaaac tctttgttag 2100 taatgtgtat tagtttgttg aaagtggaac ttgcaacaca cttattcaca agtgtgtagg 2160 gaaatatgga ttttgtatta gtatgtactg cacttagttg ttaaaaggat acttcctacg 2220 ttttcttctg ttgca 2235

<210> 2

<211> 494

<212> PRT

<213> Spinacia oleracea

<400> 2

Met Ala Ala Ser Ala Met Gly Val Leu Gln Glu Arg Glu Val Phe Lys

1 10 15

Lys Tyr Trp Ile Glu His Ser Val Asp Leu Thr Val Glu Ala Met Met
20 25 30

Leu Asp Ser Gln Ala Ser Asp Leu Asp Lys Val Glu Arg Pro Glu Val
35 40 45

Leu Ser Met Leu Pro Pro Tyr Glu Gly Lys Ser Val Leu Glu Leu Gly
50 55 60

Ala Gly Ile Gly Arg Phe Thr Gly Glu Leu Ala Glu Lys Ala Ser Gln 65 70 75 80

Val Ile Ala Leu Asp Phe Ile Glu Ser Val Ile Lys Lys Asn Glu Ser 85 90 95

Ile Asn Gly His Tyr Lys Asn Val Lys Phe Met Cys Ala Asp Val Thr
100 105 110

Ser Pro Ser Leu Asn Ile Ser Pro Asn Ser Val Asp Ile Ile Phe Ser 115 120 125

Asn Trp Leu Leu Met Tyr Leu Ser Asp Glu Glu Val Glu Arg Leu Val 130 135 140

Glu Arg Met Leu Lys Trp Leu Lys Pro Gly Gly Tyr Ile Phe Phe Arg 145 150 155 160

Glu Ser Cys Phe His Gln Ser Gly Asp His Lys Arg Lys Ser Asn Pro 165 170 175

Thr His Tyr Arg Glu Pro Arg Phe Tyr Thr Lys Ile Phe Lys Glu Cys 180 185 190

His Met Gln Asp Asp Ser Gly Asn Ser Tyr Glu Leu Ser Leu Ile Gly
195 200 205

Cys Lys Cys Ile Gly Ala Tyr Val Lys Ser Lys Lys Asn Gln Asn Gln 210 215 220

Ile Ser Trp Leu Trp Gln Lys Val Asp Ser Glu Asp Asp Lys Gly Phe 225 230 235 240

Gln Arg Phe Leu Asp Ser Ser Gln Tyr Lys Phe Asn Ser Ile Leu Arg 245 250 255



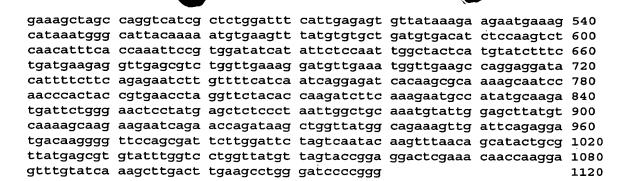
Tyr Glu Arg Val Phe Gly Pro Gly Tyr Val Ser Thr Gly Gly Leu Glu 260 265 Thr Thr Lys Glu Phe Val Ser Lys Leu Asp Leu Lys Pro Gly Gln Lys 280 Val Leu Asp Val Gly Cys Gly Ile Gly Gly Gly Asp Phe Tyr Met Ala 295 300 Glu Asn Tyr Asp Val Glu Val Val Gly Ile Asp Leu Ser Ile Asn Met 305 310 315 Ile Ser Phe Ala Leu Glu Arg Ser Ile Gly Leu Lys Cys Ala Val Glu 325 330 Phe Glu Val Ala Asp Cys Thr Lys Lys Asp Tyr Pro Glu Asn Ser Phe 345 350 Asp Val Ile Tyr Ser Arg Asp Thr Ile Leu His Ile Gln Asp Lys Pro 360 Ala Leu Phe Arg Ser Phe His Lys Trp Leu Lys Pro Gly Gly Lys Val 375 Leu Ile Ser Asp Tyr Cys Lys Ser Ala Gly Thr Pro Ser Ala Glu Phe 385 390 Ala Ala Tyr Ile Arg Gln Arg Gly Tyr Asp Leu His Asp Val Lys Ala 405 410 Tyr Gly Lys Met Leu Lys Asp Ala Gly Phe Val Glu Val Ile Ala Glu 425 430 Asn Arg Thr Asp Gln Phe Ile Gln Val Leu Gln Lys Glu Leu Asp Ala 440 Leu Glu Glu Lys Asp Asp Phe Ile Asp Asp Phe Ser Glu Glu Asp 455 460 Tyr Asn Asp Ile Val Asp Gly Trp Lys Ala Lys Leu Val Arg Thr Thr 480

465 470 475

Glu Gly Glu Gln Gln Trp Gly Leu Phe Ile Ala Lys Lys Met 485 490

<210> 3 <211> 1120 <212> DNA <213> Spinacia oleracea

<400> 3 cattcatttg aagcgtggaa gtagtagttt tgtggtagag tgaatttgat actcctactg 60 ctcatgcggc agagaggcag ggcttcgaac cgtagatcca ggactttttc tcgttctcgc 120 attgccattg agggtcacta atacttttaa ctatctcctt ctttttcttt cccacaattt 180 ctgcgttttc acgcacatta atctcaccta ttttctagct tcttcatttt ctcaatcaat 240 ctctcgtgtt attatggccg cttcagctat gggagtgttg caagagagag aggtgttcaa 300 gaaatactgg attgaacact ctgttgattt gactgttgag gctatgatgc ttgattcaca 360 agcttcagat cttgacaaag tggagcgacc tgaggtactt tccatgcttc caccttatga 420 aggaaagtet gtettagaac teggtgetgg tattggtegt tttactggtg aattggeega 480



<210> 4

<211> 289

<212> PRT

<213> Spinacia oleracea

<400> 4

Met Ala Ala Ser Ala Met Gly Val Leu Gln Glu Arg Glu Val Phe Lys

1 10 15

Lys Tyr Trp Ile Glu His Ser Val Asp Leu Thr Val Glu Ala Met Met
20 25 30

Leu Asp Ser Gln Ala Ser Asp Leu Asp Lys Val Glu Arg Pro Glu Val
35 40 45

Leu Ser Met Leu Pro Pro Tyr Glu Gly Lys Ser Val Leu Glu Leu Gly 50 55 60

Ala Gly Ile Gly Arg Phe Thr Gly Glu Leu Ala Glu Lys Ala Ser Gln 65 70 75 80

Val Ile Ala Leu Asp Phe Ile Glu Ser Val Ile Lys Lys Asn Glu Ser 85 90 95

Ile Asn Gly His Tyr Lys Asn Val Lys Phe Met Cys Ala Asp Val Thr 100 105 110

Ser Pro Ser Leu Asn Ile Ser Pro Asn Ser Val Asp Ile Ile Phe Ser 115 120 125

Asn Trp Leu Leu Met Tyr Leu Ser Asp Glu Glu Val Glu Arg Leu Val 130 135 140

Glu Arg Met Leu Lys Trp Leu Lys Pro Gly Gly Tyr Ile Phe Phe Arg 145 150 155 160

Glu Ser Cys Phe His Gln Ser Gly Asp His Lys Arg Lys Ser Asn Pro 165 170 175

Thr His Tyr Arg Glu Pro Arg Phe Tyr Thr Lys Ile Phe Lys Glu Cys 180 185 190

His Met Gln Asp Asp Ser Gly Asn Ser Tyr Glu Leu Ser Leu Ile Gly 195 200 205

Cys Lys Cys Ile Gly Ala Tyr Val Lys Ser Lys Lys Asn Gln Asn Gln 210 215 220



Ile	Ser	Trp	Leu	Trp	Gln	Lys	Val	Asp	Ser	Glu	Asp	Asp	Lys	Gly	Phe
225					230					235					240

Gln Arg Phe Leu Asp Ser Ser Gln Tyr Lys Phe Asn Ser Ile Leu Arg
245 250 255

Tyr Glu Arg Val Phe Gly Pro Gly Tyr Val Ser Thr Gly Gly Leu Glu 260 265 270

Thr Thr Lys Glu Phe Val Ser Lys Leu Asp Leu Lys Pro Gly Ile Pro 275 280 285

Gly

<210> 5 <211> 11

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: SYNTHETIC OLIGONUCLEOTIDE

<400> 5 ctcgagatct g

11

<210> 6 <211> 15 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: SYNTHETIC OLIGONUCLEOTIDE

<400> 6

tegacagate tegag 15

<210> 7

<211> 9

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: SYNTHETIC
 OLIGONUCLEOTIDE

<400> 7 ctcgtgcca

9

<210> 8

<211> 13

<212> DNA

<213> Artificial Sequence







<220>

<223> Description of Artificial Sequence: SYNTHETIC
 OLIGONUCLEOTIDE

<400> 8 gatctggcac gag

13